

CLAIMS

What is claimed is:

1. A linear compressor comprising:
an external casing forming a compressing chamber;
an outer core disposed in the external casing;
an inner core assembly disposed inside of the outer core interacting with the outer core
wherein the inner core assembly comprising:
an inner core,
an upper cover combined to an upper part of the inner core, and
a bottom supporting part combined to a bottom part of the inner core.
2. The linear compressor of claim 1, wherein the inner core comprising a plurality of core blocks provided by stacking a plurality of core steel plates made by punching thin steel plates, and the plurality of core blocks are circumferentially arranged around the inner core at regular intervals.
3. The linear compressor of claim 2, wherein each of the core steel plates comprising:
an upper hook in an upper part thereof, and a bottom hook in a bottom part thereof; and
the upper cover comprising an upper recess to engage with the upper hook; and the bottom supporting part comprising a bottom recess to be engaged to the bottom hook.
4. The linear compressor of to claim 3 further comprising at least one connection member, wherein the upper cover and the bottom supporting part are connected to each other by the at least one connection member, which stands erect toward the bottom supporting part.
5. The linear compressor of claim 4, wherein the at least one connection member comprising a bolt or a rivet disposed between the plurality of core blocks.
6. The linear compressor of claim 3, wherein the upper cover and the bottom supporting part are provided as a single unit, and the plurality of core blocks comprising connection supporting parts standing erect toward the bottom supporting part between the core blocks, forming a single unit with the upper cover and the bottom supporting part.

7. The linear compressor of claim 1, wherein the inner core is made by stacking a plurality of core steel plates made by punching thin steel plates.

8. The linear compressor of claim 7, wherein the upper part of each of the core steel plates comprising an upper hook protruding upward, and the bottom supporting part of each of the core steel plates comprising a bottom hook protruding downward, and the upper cover has an upper recess to engage with the upper hook and the bottom supporting part comprising a bottom recess to engage with the bottom hook, and wherein an area where the upper hook is engaged with the upper recess, and an area where the bottom hook is engaged with the bottom recess are welded to each other .

9. The linear compressor of claim 1, wherein the external casing is closed to an outside with an upper casing and a bottom casing welded to each other at an end of the upper casing and an end of the bottom casing.

10. The linear compressor of claim 6, wherein the upper cover and the bottom supporting part are provided as the single unit by injection molding.

11. A linear compressor comprising:
an external casing forming a compressing part;
a mover provided in the external casing and comprising:
a main frame,
an inner core assembly disposed inside of the main frame and comprising:
an inner core,
an upper cover combined to an upper part of the inner core, and
a bottom supporting part combined to a bottom of the inner core, and
a magnet disposed in an opening of the inner core assembly; and
an outer core disposed in the external casing.

12. The linear compressor of claim 11, further comprising at least one connection member, wherein the upper cover is attached to the bottom supporting part by the at least one connection member.

13. The linear compressor of claim 11, wherein the inner core is cylinder-shaped.
14. The linear compressor of claim 11, wherein the inner core comprising a plurality of core blocks radially arranged at regular intervals.
15. The linear compressor of claim 14, wherein each of the core blocks is formed by stacking a plurality of core steel plates made by punching a thin steel plate and welding the plurality of core steel plates.
16. The linear compressor of claim 15, further comprising:
upper hooks protruding upward and combining to the upper cover; and
bottom hooks protruding downward and combining to the bottom supporting part in a bottom of the plurality of core steel plates.
17. The linear compressor of claim 16, further comprising an upper recess formed in an upper part of the inner core engaged with the upper hooks to combine the upper cover to the upper part of the inner core.
18. The linear compressor of claim 12, wherein the upper cover comprising a plurality of first connecting holes circumferentially arranged around the inner core.
19. The linear compressor of claim 16, further comprising a bottom recess in a bottom of the inner core engaged with the bottom hooks to combine the bottom supporting part to the bottom of the inner core.
20. The linear compressor of claim 18, wherein the bottom supporting part further comprising a plurality of second connecting holes circumferentially arranged around the inner core, wherein the at least one connection member connecting the upper cover and the bottom supporting part is engaged.
21. The linear compressor of claim 20, wherein the at least one connection member comprising a bolt or a rivet and passing through the first connecting hole of the upper cover and through a space formed between the plurality of core blocks and is then inserted into the second connecting hole of the bottom supporting part.

22. The linear compressor of claim 12, wherein the at least one connection member is vertically positioned to the bottom supporting part.

23. The linear compressor of claim 11, wherein the compressing part comprising:
a cylinder block forming a compressing chamber while supporting a bottom of the outer core;
a piston reciprocating in the compressing chamber; and
a cylinder head provided in a bottom of the cylinder block and having valves for a refrigerant.

24. The linear compressor of claim 23, wherein the outer core is provided on an outside of the mover with a predetermined gap relative to the magnet.

25. The linear compressor of claim 24, wherein the outer core further comprising a plurality of core steel plates having annular coils therein.